

for those who are particularly intrigued with the recent advances in technology and the question on how to reconcile legal environment with technology.

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***Digital Revolution: Challenges for Contract Law in Practice*, Edited by Reiner Schulze and Dirk Staudenmayer, Hart/Nomos, 2016, ISBN: (978-1-50-990733-5), 271pp, £85.00.**

The book reflects a collection of papers presented at a workshop held in October 2015, at the Centre for European Private Law of the Westfälische Wilhelms-Universität Münster, edited by Reiner Schulze and Dirk Staudenmayer and published by Hart Publishing. As the title suggests, the workshop focused on the creation of the Digital Single Market, the changeover to digital economy, and the effects and requirements of the digital economy on European private law. The articles range from 'The challenges of digitisation for consumers' (G. Billen) through 'Regulation of share economy: a consistently changing environment' (LA. DiMatteo) to 'Liability and risk management in robotics' (E. Palmerini and A. Bertolini).

Contract law is central to a functioning market economy. This book provides an insight into the varied and complex issues of contractual duties and the allocation of liability in the light of the newest EU-wide initiatives related to the digital economy.¹ The collection is divided into three distinct topics—3D Printing, Share Economy and the Internet of Things. Each contribution in this book helps to build a picture of the new, digital consumer and it is the consumer and protection of their expectations, which are the focal point of the discussion. The main objective of workshop and this publication is to understand the underlying technology and business models, the opportunities and benefits they present for digital consumers, as well as the risks and challenges posed by the digital world. The core values needed for successful digitization are trust, transparency, privacy and security. The difficult task is not only to draft effective and comprehensive consumer protection policies, but also to successfully implement them in practice. There are number of useful chapters that propose such policies, examine their practical impact or contain some comparative materials.

The first section explores how the arrival of 3D printing may 'disrupt' the existing understanding of contract and tort law, especially in relation to the sale of goods. There are only two articles in this section. In Conformity of 3D prints—Can current Sales Law cope? C. Twigg-Flesner provides detailed and interesting summary of 3D

1 For instance, a number of consultations launched by the European Commission in connection with the Digital Single Market Strategy, eg Commission, 'A Digital Single market Strategy for Europe' COM (2015) 192 final.

printing technology, overview of different transaction scenarios and specific contract law issues. He identifies the main legal challenges to be the dividing line between a hobbyist and a trader, conformity and remedies for non-conformity, the role and legal response to the growing use of online platforms, for both selling and production. The topic is further explored in *3D Printing: the Limits of Contract and Challenges for Tort*, in which G. Howells and C. Willet argue that 3D printing will democratize the production and sale of goods and as a result, the Sales Directive, the primary source of liability for non-conformity of goods with the contract, will no longer apply. Instead, they propose that liability should be imposed based on tort law.

The next section contains articles addressing the phenomenon of the 'sharing economy' or 'shared economy', which is based on economic transactions between two private parties (such as crowdfunding, couchsurfing, or carsharing). Current consumer protection legislation only applies to business-to-consumer transactions. LA. DiMatteo provides a helpful insight into the regulatory initiatives in the USA in relation to this sector. The chapter on 'Regulation of Share Economy: A Consistently Changing Environment' offers a useful overview of different types of regulations: regulation, self-regulation and non-regulation, in sectors such as transportation, legal services, social media, advertising, fraud and mass collaboration. Using the case studies of Uber, Lyft, Airbnb, user-generated content, or legalsourcing, LA. DiMatteo argues against new or extensive regulation of shared economy, because it would lead to significantly reduced societal benefits. He believes that the existing legal structures (the constructs of contract, privacy, trespass and property) are flexible enough to apply to most legal issues posed by the information age.

The argument against new and extensive regulation is further strengthened by C. Meller-Hannich in 'Share Economy and Consumer Protection'. She very usefully emphasizes that although the underlying motivation behind a share economy is sustainability and altruism, it remains an economy. As such, offering an interest of a certain legal or economic relevance in return for payment or other consideration results in the existence of a contract with corresponding performance obligations. As soon as a supplier pursues a commercial or professional goal by making an offer, mandatory law applies in favour of the consumer. 'Share Economy and the Consumer Concept' by R Illescas Ortiz, the third contribution in this section, focuses on the concept of the consumer. The article, in particular the structure and clarity of the argument, would improve significantly with some more assistance from the editors.

The last and by far the longest section in this book is titled 'Internet of Things' and contains a number of diverse topics, from consumer profiling and targeting, digital contract to allocation of liability in robotics. I particularly enjoyed 'Liability and risk management in Robotics' (E. Palmerini and A. Bertolini), where the authors provide a valuable analysis of the existing legal concept of liability that is pertinent when discussing completely autonomous systems such as self-driving cars or robotics. The first issue arises from the very notion of robots. E. Palmerini and A. Bertolini argue that attention should be focused on isolating the traits that could be of relevance in robotics, rather than trying to identify an all-encompassing definition. The nature and function of the specific application or autonomous system will determine the applicable legal definitions and legal regimes. Based on features such as embodiment,

connectivity and autonomy, robots present a challenge to the traditional concept of liability.

Overall, the collection is informative and readable. The book provides an interesting insight into number of topical issues arising from new and 'disruptive' technologies and business models. However, it needs to be noted that these topics are not given an exhaustive treatment. Rather, the collection serves as a valuable source of information for practitioners, policymakers and consumer associations alike, through which their knowledge of the area can be broadened and deepened. As the editors state in the introductory remarks, we need to 'ensure that law finds the answers the economy needs for what technology can deliver'.²

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- 2 Reiner Schulze and Dirk Staudenmayer, 'Digital Revolution - Challenges for Contract Law' in Reiner Schulze and Dirk Staudenmayer (eds), *Digital Revolution: Challenges for Contract Law in Practice* (Hart Publishing; Baden-Baden: Nomos, 2016).

***Virtuality and Capabilities in a World of Ambient Intelligence*, by Luiz Costa, Springer, 2016, ISBN: 978-3-319-39197-7, 175pp, £86.**

New Challenges to Privacy and Data Protection

The importance of privacy law has become fundamental in a world where most of our daily activities are performed through technology. However, this complex scenario requires a novel approach to understanding the multiplicity of elements that converge there and their legal relevance. *Virtuality and Capabilities in a World of Ambient Intelligence* by Luiz Costa represents a relevant effort to address this phenomenon from the perspective of ubiquitous intelligent devices and their impact on the law, specifically data protection and privacy.

My initial conception of this book was that it would be addressed to students and early-career legal professionals with an interest in the relation between law and technology. Nevertheless, as I read its chapters I realized that this was not a mere academic contribution. It also provides relevant insights into the potential impact that ubiquitous devices in intelligent scenarios like 'smart cities' may have on a citizen's legal sphere.

The first part (Chapters 1 to 4) serves as an introductory overview of the operational nature of the technological framework and its potential implications on freedoms. In this sense, the author delivers a preliminary overview of the 'smart city' scenario, presenting the benefits it offers to the social environment. After this, it points out a set of unethical and potentially illegal uses this technology could have, in order to affect (in this case limit) the forms in which certain rights are enjoyed.